## REMARKS/ARGUMENTS

Claims 1 – 37 are resubmitted. Claims 1, 11, 19, 24, 25 and 31 are currently amended. No new claims have been added. No claims have been canceled.

Claims 1, 2, 4, 6, 9, 10, 25, 26, 31 and 32 have been rejected under 35 USC 102(b) as being anticipated by U.S. Patent No. 6,073,670 to Koury.

Claims 1-6, 9-15, 17-21 and 23-35 were rejected under 35 USC 103(a) as being unpatentable over Koury in view of the admitted prior art and either one of European Patent No. 198,744 or PCT WO 03/035380 optionally further taken with magazine article entitled "R U Reinforcing plastics with robots?", by Ermert et al published in Plastics Engineering, May, 1981.

Claims 7, 8, 16, 21, 22, 36 and 37 were rejected under 35 USC 103(a) as being unpatentable over the Koury in view of the admitted prior art and either one of European Patent No. 198,744 or PCT WO 03/035380 optionally further taken with magazine article entitled "R U Reinforcing plastics with robots?", by Ermert et al published in Plastics Engineering, May, 1981, further in view of U.S. Patent No. 3,380,3675 to Baxter et al and either one of U.S. Patent No. 5,651,850 to Turner et al, U.S. Patent No. 3,141,806 to Reinman, U.S. Patent No. 3,174,388 to Gaubatz or U.S. Patent No. 3,402,091 to Trimble.

Support for the amendments to the claims may be found, for example, in the figures and in the specification as filed, for example, at paragraph **[0030]**, **[0041]** and **[0052]**.

Examiner Interview

A telephonic interview was conducted between the Examiner and Applicant's representative on September 23, 2005. The rejections under 35 USC 102(b) and 35 USC 103 were discussed. No agreement was reached.

Rejections - 35 USC § 102 (b)

Claims 1, 2, 4, 6, 9, 10, 25, 26, 31 and 32 have been rejected under 35 USC 102(b) as being anticipated by U.S. Patent No. 6,073,670 to Koury. The rejections have been addressed by amending Claims 1, 11, 19, 24, 25 and 31 to include the ability of the system to cover substantially all of a mandrel surface with composite material at a variable and predetermined orientation relative to the mandrel. Support for the amendments to the claims can be found in the specification, for example, at paragraphs **[0030]**, **[0041]** and **[0052]** and the figures.

Koury (U.S. Patent No. 6,073,670)

Koury teaches a method for placing composite fibers into a plurality of channel molds to form the ribs of a structural member. The method provides a means for providing relative movement between the mold and a plurality of fiber placement heads thereby allowing the simultaneous placement of fibers into a number of channels of a mold. Koury does not teach nor contemplate the ability to dispense a composite material and cover substantially all of the mandrel surface as is described in the instant application. In fact, Koury describes the additional step of laminating a skin to the lattice work created by the method in Koury (see column 1, line 27 – 38). The ability to precisely dispense a composite material and cover substantially all of the mandrel surface as taught by the instant application provides an efficient means to create large, complex composite structures quickly.

Therefore, Applicant submits that Koury does not anticipate the present invention (as claimed by the amended claims), but rather presents a method of laying down individual composite fibers in well defined channels which is wholly different from the present invention to achieve alternative results from those of the present invention.

Rejections - 35 USC § 103(a)

Claims 1-6, 9-15, 17-21 and 23-35 were rejected under 35 USC 103(a) as being unpatentable over Koury in view of the admitted prior art and either one of European Patent No. 198,744 or PCT WO 03/035380 optionally further taken with magazine article entitled "R U Reinforcing plastics with robots?", by Ermert et al published in Plastics Engineering, May, 1981.

Claims 7, 8, 16, 21, 22, 36 and 37 were rejected under 35 USC 103(a) as being unpatentable over the Koury in view of the admitted prior art and either one of European Patent No. 198,744 or PCT WO 03/035380 optionally further taken with magazine article entitled "R U Reinforcing plastics with robots?", by Ermert et al published in Plastics Engineering, May, 1981, further in view of U.S. Patent No. 3,380,675 to Baxter et al and either one of U.S. Patent No. 5,651,850 to Turner et al, U.S. Patent No. 3,141,806 to Reinman, U.S. Patent No. 3,174,388 to Gaubatz or U.S. Patent No. 3,402,091 to Trimble.

The rejections have been addressed by amending Claims 1, 11, 19, 24, 25 and 31 to include the ability to cover substantially all of a mandrel surface . Support for the amendments to the claims can be found in the specification, for example, at paragraphs **[0030]**, **[0041]** and **[0052]** and the figures.

European Patent No. 198,744

EP 198,744 discloses the use of a single headed composite laying machine capable of dispensing single fibers as well as composite tape. The singular head is disposed substantially perpendicular to the mandrel and the mandrel is rotated as the singular head is translated axially to cover the mandrel with composite material. This reference does not contemplate the use of multiple heads, located at various positions around the mandrel as in the instant application. It also does not contemplate the installation of composite fibers at various orientations around the mandrel. The instant application provides a means to lay down composite tape at various orientations on the mandrel to produce a structurally efficient composite part.

Therefore, Applicant submits that EP 198,744 taken alone or in combination with the other references, does not make obvious the present invention (as claimed by the amended claims), but rather presents a standard, well known machine for laying down individual composite fibers and tape in a simple wrapping pattern which is wholly different from the present invention to achieve alternative results from those of the present invention.

PCT WO 03/035380

This document concerns the fabrication of aerodynamic structures made from composite material requiring a variety of steps including the step of applying fiber to the outside surface of mandrel. This reference seems to employ a pair of fiber laying fittings, each fitting have a movable arm and a single fiber laying head. Each fiber laying head is movable along a separate track which runs parallel to the mandrel. The fiber laying fittings dispense a fiber around the outside of the mandrel as the mandrel spins. This reference does not contemplate the use of multiple heads connected to one another through a single fitting, located at various positions around the mandrel as in the instant application. It also does not contemplate the installation of composite

fibers at various orientations around the mandrel. The instant application, contrary to this reference, provides a means to quickly lay down composite tape at various orientations on the mandrel to produce a structurally efficient composite part.

Therefore, Applicant submits that PCT WO 03/035380 taken alone or in combination with the other references, does not make obvious the present invention (as claimed by the amended claims), but rather presents a standard, well known machine having separately controlled heads for laying down individual composite fibers and tape in a simple wrapping pattern which is wholly different from the present invention to achieve alternative results from those of the present invention.

"R U Reinforcing plastics with robots?"

"R U Reinforcing plastics with robots?" by Ermert et al published in Plastics Engineering, May, 1981 merely describes the use of robotic arms to perform the task of manually applying various composite materials to a mandrel. It does not disclose the use of multiple heads to quickly and efficiently cover substantially all of the surface of a mandrel at predetermined fiber orientations.

Baxter et al

U.S. Patent No. 3,380,3675 to Baxter et al, similar to EP 198,744, teaches he use of a multi-headed composite laying machine capable of dispensing single fibers as well as composite tape. The heads are disposed substantially perpendicular to the mandrel and the mandrel is rotated as the heads are translated axially to cover the mandrel with composite material. This reference deals solely with filament winding technology on a stationary tool. Filament winding technology has severe limitations on fiber angles. This

reference does not contemplate the installation of composite fibers at various orientations around the mandrel. Contrary to this reference, the instant application provides a means to lay down composite tape at various orientations on the mandrel to produce a structurally efficient composite part.

Therefore, Applicant submits that Baxter et al., taken alone or in combination with the other references, does not make obvious the present invention (as claimed by the amended claims), but rather presents a standard, well known machine for laying down individual composite fibers and tape in a simple wrapping pattern which is wholly different from the present invention to achieve alternative results from those of the present invention.

The remaining references, which include Turner et al., Reinman, Gaubatz, and Trimble, merely focus on fiber laying machines that are directed at the application of single or multiple fibers in a well-known fixed pattern around a mandrel. On the other hand, the instant application provides a means to apply composite material in a manner that may be easily modified to produce the most structurally efficient component for any given mandrel design.

## CONCLUSION

Applicants would like to thank the Examiner for the telephone interview of September 23, 2005. Reconsideration and withdrawal of the Office Action with respect to claims 1-37 is requested.

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In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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